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Kheyfets, V.L.

USSR/Electrochemistry B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26301

Author : V.L. Kheyfets, B.S. Krasnikov
Inst : Academy of Sciences of USSR
Title : Influence of Adsorbed Hydrogen on Zero Charge of Some Metals

Orig Pub : Dokl. AN SSSR, 1956, 109, No 3, 586-588

Abstract : The potentials of the zero charges (φ_z) of Hg, Cu, Ag, Zn (monocrystal, face 0001), Pt, Pd, Co and Cd were determined by methods described earlier (RZhKhim, 1954, 35687) in normal solutions of H_2SO_4, + NaOH + Na_2SO_4 and H_2SO_4 ~~and Na_2SO_4~~ with added concentrations of 0.02n. and pH = 1 to 11.5 by measuring the capacity. The electrodes were previously cathodically polarized one hour at i = 0.25 ma per sq. cm. It is shown that φ_z of Hg, Cu, Ag, Zn and Cd does not depend on pH. In case of metals capable to absorb hydrogen (Pt, Pd, Co), φ_z is [illegible] side with the decrease of [illegible]. It is shown that the value of φ_z measured on the diffusion side of the Pt membrane shifts to the positive side for about 550 mv with the increase of the saturation of the Pt membrane with

Card : 1/2

USSR/Electrochemistry

B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26301

hydrogen at pH = 2 by the cathode polarization. In the authors' opinion, the dependence of φ_z on pH is determined by the change of the equilibrium hydrogen, saturating the metal, together with pH.

Card : 2/2

Adsorption of aliphatic alcohols. II. Adsorption on solid electrodes. V. L. Khiliga, B. S. Krasik [illegible] [illegible]bimova, and I. V. Guseva. Vestnik Leningrad. [illegible] No. 4, Ser. Fiz. i Khim. No. 1, 121-31 (195[illegible]) [illegible] 48704. —The adsorption properties of aliphatic alc[illegible] from EtOH to $C_6H_{13}OH$ were studied in a wide [illegible] range [illegible] by investigating their adsorption [illegible] face of a [illegible] electrode in 0.02 N [illegible] PrOH form a monolayer on the [illegible] are adsorbed as polylayers [illegible] This difference in adsorption causes variations in the [illegible] of the elec[illegible] [illegible] capacity [illegible]

SOV/137-58-7-14567

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 89 (USSR)

AUTHORS: Rotinyan, A.L., Kheyfets, V.L.

TITLE: Production of Very High-purity Cathodic Nickel (Polucheniye osobo chistogo katodnogo nikelya)

PERIODICAL: Materialy Soveshchaniya po vopr. intensifik. i usovershen. dobychi i tekhnol. pererabotki medno-nikelevykh i nikelevykh rud. 1956 g. Moscow, Profizdat, 1957, pp 195-203

ABSTRACT: The fundamentals of an electrochemical method of very high bulk purification of the Ni electrolyte (E) from a number of impurities are set forth. The essence of the method consists of purifying the Ni bath by prior electrolysis. The method has been checked out in the electrolysis departments of the Yuzhuralnikel' and Severonikel' Kombinats. Electrolysis was conducted in standard electrolysis baths, divided by brick partitions into 4 or 5 chambers; the temperature was 60°C, the pH 4.5-5.0, and stirring of the E was done by air. The anodes were insoluble (graphite). Acidity was neutralized by Ni carbonate derived from the purified E. After purification in the baths a filter press was used to filter out the black hydrates,

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SOV/137-58-7-14567

Production of Very High-purity Cathodic Nickel

and the E were then delivered to the cathode cells for Ni electrolysis. In the Yuzhuralnikel' experiments, cleaning was run 7.5-11 times with circulation of 250 liters per hour per bath and 3 to 4 times with circulation of 350-400 liters per hour per bath. At Severonikel' it was run 26 times at 300 liters per hour, 7 times at 600 liters per hour, and 5 times at 860 liters per hour. The high degree of purification at Severonikel' is explained by the superior organization of the stirring and the separation of the bath into a larger number of chambers (5). The following are features of the electrochemical method of refining: 1) the possibility of removing from the E in a single operation all impurities deposited at the cathode at maximum current; 2) the possibility of purifying the solution to a high degree; 3) the fact that the method requires no special equipment and is performed in ordinary electrolysis baths with standard filter equipment. It is recommended that the method also be used in the very high purification stage.

N.P.

1. Nickel--Production 2. Nickel--Purification 3. Electrolysis--Applications

Card 2/2

KHEYFETS, V.L.

AUTHORS: Kheyfets, V. L., Krasikov, B. S., Sysoyeva, V. V., 54-4-17/20
Guseva, I. V.

TITLE: Investigation of Adsorption of Aliphatic Spirits. III. Adsorption at the Transit From Aqueous to Alcoholic Solutions (Issledovaniye adsorbtsii alifaticheskikh spirtov. III. Adsorbtsiya pri perekhode ot vodnykh rastvorov k spirtovym).

PERIODICAL: Vestnik Leningradskogo Universiteta Seriya Fiziki i Khimii,
1957, Vol. 22, Nr 4, pp. 148-151 (USSR).

ABSTRACT: Examined was the adsorption of ethanol, n-propanol and iso-propanol in a concentration of 16 to $5 \cdot 10^{-3}$ mol/l on the Hg-electrode, by measurement of the voltage, which originated from the capacity of the double layer and the electrode potential. The presence of the alcohol-hydrates in the solution can be explained by the fact that part of it is to be found in the double layer even if there is no tendency to specific adsorption. Consequently the capacity of the double layer goes down. The desorption of the alcohol from the double layer can only be effected, if there are free water molecules present in the solution (no hydrates of the type $R.CH_2OH.H_2O$).
There are 4 figures, 1 table, and 5 references, 4 of which are Slavic.

Card 1/2

Investigation of Adsorption of Aliphatic Spirits. III. 54-4-17/20
Adsorption at the Transit From Aqueous to Alcoholic Solutions.

SUBMITTED: February 22, 1956.

AVAILABLE: Library of Congress.

Card 2/2

KHEYFETS, V. L.

[illegible]

[illegible] Zhur. Priklad. Khim. 30 [illegible] deposition of Co and im[illegible] purified [illegible] given previously (C.A. 49, 11467) [illegible] K_d [illegible] the cell resp.; K_d is the convection diffusion const. [illegible] current efficiency [illegible] vs. [illegible] are linear functions with [illegible] slopes. The line A vs. C_M is either above or below the line [illegible] depending on the relation of the [illegible] deposition and K_d. For [illegible] contg. Cu, Zn, or Pb the [illegible] with I [illegible]

KHEYFETS, V. L.

The nature of adsorption layers on the surface [illegible]
metals [illegible] L. Kheifets and [illegible] [illegible]
[illegible]
[illegible] 1.46 [illegible]
[illegible] in 1 N H_2SO_4 [illegible] 0.5 N Na_2SO_4 [illegible]
[illegible] and [illegible] Na [illegible]
[illegible] in the charge of [illegible] of a liquid [illegible]
[illegible] far from the potential [illegible] of the [illegible]
[illegible] the presence of a surface-active [illegible]
[illegible] in the absence of H [illegible]
[illegible] and for the curves [illegible]
[illegible] of H [illegible]
[illegible] not [illegible]
[illegible] as a function of [illegible]
[illegible] N H_2SO_4 [illegible]
[illegible] Hg [illegible] 0.02 N H_2SO_4 [illegible]
[illegible]
[illegible]

KHEYFETS, V. L.

AUTHOR KHEIFETS V.L., KOZICH E.S. and DANILOVICH O.M. PA - 2921

TITLE Rules Governing the Capture of Copper, Antimony, Lead, Cobalt, Iron and Zinc Admixtures in the Cathode Deposit of Tin. (Zakonomernosti vklucheniya medi, surimy, svintsa, kobalta, zheleza i tsinka v katodnyy osadok o lova.- Russian)

PERIODICAL Doklady Akademii Nauk SSSR 1957, Vol 113, Nr 1, pp 138-141 (U.S.S.R.)

Received: 6/1957 Reviewed: 7/1957

ABSTRACT

The possibility of a collective deposition of the admixtures together with the principal metal depends on a number of conditions: On the position of the standard potential in relation to the potential of the principal metal, on the value of their exchange currents and on the structure of their alloy etc. Tin displays a high exchange current and is only polarized to a low degree,

The position of copper in the potential series and a higher exchange current left no doubt on the fact, that its influence on the cathode deposit must result in a peak current. The only admixture, the precipitation of which is limited by diffusion, is copper. The precipitation of every other admixture is limited by the discharge velocity. The latter, however, must be separated into two groups, the first of which contains antimony

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PA - 2921

Rules Governing the Capture of Copper, Antimony, Lead, Cobalt, Iron and Zinc Admixtures in the Cathode Deposit of Tin.

and lead. Antimony possesses a greater standard potential in than that of tin. A Marked polarizability of the process leads to the precipitation of antimony being limited to the discharge stage. On this occasion it is necessary to take into consideration a polarization value, however small, of the tin discharge. Lead is closely related to tin with respect to these two properties. Therefore both admixtures must obey the rules for the case that the discharge velocity of the principal metal and of the admixtures is limited to the discharge stage. The dependence of the antimony contents in the cathode deposit upon its contents in the solution is expressed by a parabola-like curve in agreement with the theory. The dependence of the lead contents in the cathode deposit on current density rises sharply up to a current density of ~ 220 amps/sqm. It changes little with a further increase after the diffusion resistance began to take effect. In the case of antimony, this dependence lacks entirely. Iron and cobalt are metals which more electronegative than tin and, besides have a lower exchange current. Zinc is a more negative

CARD 2/4

Rules Governing the Capture of Copper, Antimony, Lead, Cobalt, Iron and Zinc Admixtures in the Cathode Deposit of Tin.

by 0,62 B in the potential series than tin, although it possesses a high exchange current and forms neither solid solutions nor chemical compounds with lead. It is only natural that on the one hand, the discharge velocity of this metal is determined by the velocity in the discharge stage, on the other hand, however, the liberation polarization of the principal metal because of its low value, is unable to exercise an essential influence on the inclusion of these metals into the deposit. The increased tin content in the electrolyte lead according to the theory, to a noticeable reduction of such admixtures in the cathode deposit, the separation velocity of which is determined by the discharge stage. From the table 1 it man be seen, that in the case of the discharge velocity of the principal metals being determined by the discharge, and the discharge velocity of the admixture by diffusion, the individual properties of the admixture and the principal metal cease to be of importance and the composition of the deposit is much richer in admixture substance than the

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Rules Governing the Capture of Copper, Antimony, Lead, Cobalt, Iron and Zinc Admixtures in the Cathode,Deposit of Tin.

solution. In the case of a low polarizability of the separation of the principal metal and of the admixture with peak current the composition of the deposit proves to be identical to that of the solution. Finally, if the separation of the admixture is determined by the discharge stage.
The deposit is purer than the solution and the velocity of admission of the admixture depends on the individual properties of the admixture as well as of the principal metal.
(With 4 illustrations, 1 table, 3 citations from publications.)

ASSOCIATION: Scientific Institute for Research and Projecting of the Nickel - Cobalt and Tin Industry. Leningrad.
(Nauchno-iss ledovatelskiy i projectonyy institut nikelevoy, kobaltovoy i o lovyannoy prompyshlennosti, Leningrad.)
PRESENTED BY: A.N. FRUMKIN, member of Academy.
SUBMITTED: 1.8. 1956.
AVAILABLE: Library of Congress.

CARD 4/4

SOV/81-59-15-52783

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 15, p 69 (USSR)

AUTHORS: Kheyfets, V.L., Rotinyan, A.L.

TITLE: The Joint Discharge of Ions and the Problem of Obtaining Metals of High Purity

PERIODICAL: Tr. Proyektn. i n.-i. in-ta "Gipronikel'", 1958, Nr 1, pp 3-18

ABSTRACT: The principal laws are considered for the joint discharge of ions of the basic metal and admixtures on the cathode applicable to the electrolytic preparation of metals of high purity from aqueous solutions. Starting from the equation of joint discharge the available experimental data in this field are discussed, especially the laws of the change of the concentration of the admixtures in the basic metal depending on their concentration in the electrolyte, on the composition of the solution, the temperature, current density and other conditions for the various metals.

Z. Solov'yeva

Card 1/1

GRILIKHES, Semen Yakovlevich, kand. tekhn. nauk; KHEYFETS, V.L., kand. tekhn. nauk, retsenzent; VIACHESLAVOV, P.M., dots., kand. khim. nauk, red.; YAMPOL'SKIY, A.M., inzh., red.; VASIL'YEVA, V.P., red. izd-va; SOKOLOVA, L.V., tekhn. red.

[Preparation of articles for electroplating and finishing of the electroplate] Podgotovka izdelii pered gal'vanicheskimi pokrytiiami i otdelka pokrytii. Pod obshchei red. P.M. Viacheslavova. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1958. 60 p. (Bibliotechka gal'vanotekhnika, no.2). (MIRA 11:9)
(Electroplating)

KHEYFETS, V.L.

BELOZERSKIY, N.A.; ORMONT, B.F., prof., doktor, retsenzent; FILIN, N.A., prof.doktor, retsenzent; KHEYFETS, V.L., kand.tekhn.nauk, retsenzent; CHERNOBROV, S.M., red.; KAMAYEVA, O.M., red.izd-va; ATTOPOVICH, M.K., tekhn.red.

[Carbonyls of metals] Karbonily metallov. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1958. 372 p. (MIRA 11:7)

(Carbonyls) (Organometallic compounds)

KHEYFETS, V.L.

5(2) PHASE I BOOK EXPLOITATION . SOV/2946

Leningrad. Universitet

Voprosy khimii (Problems in Chemistry) [Lengingrad] Izd-vo Leningradskogo univ., 1959. 160 p. (Series: Its: Uchenyye zapiski, no. 272) (Series: Leningrad. Universitet. Khimicheskiy fakultet. Uchenyye zapiski. Seriya khimicheskikh nauk, vyp. 18) 1,600 copies printed.

Resp. Ed.: A. G. Morachevskiy; Ed.: Ye. V. Shchemeleva; Tech. Ed.: S. D. Vodolagina.

PURPOSE: This book is intended for chemists in research and industry as well as for teachers and students in chemical vuzes.

COVERAGE: This collection of eighteen articles on various branches of chemistry, mainly physical and analytical, was compiled on the basis of experimental research by the Chemistry Department of Leningrad University. The articles deal chiefly with methods of isolating rare earths in pure form and identifying them. No personalities are mentioned. References accompany individual articles.

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KHEYFETS V.L.

~~SHLYGIN, A. I.~~

5(4) PHASE I BOOK EXPLOITATION SOV/2216

Soveshchaniye po elektrokhimii. 4th, Moscow, 1956.

Trudy...; [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed.
Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk.

Editorial Board: A.N. Frumkin (Resp. Ed.) Academician, O.A. Yesin, Professor; S.I. Zhdanov (Resp. Secretary), B.N. Kabanov, Professor, S.I. Zhdanov (Resp. Secretary); B.N. Kabanov, Professor; Ya. M. Kolotyrkin, Doctor of Chemical Sciences; V.V. Losev, P.D. Lukovtsev, Professor; Z.A. Solov'yeva; V.V. Stender, Professor; and G.M. Florianovich; Ed. of Publishing House: N.G. Yegorov; Tech. Ed.: T.A. Prusakova.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

COVERAGE: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection pertains to different branches of electrochemical kinetics, double layer theories and galvanic processes in metal electrodepositon and industrial electrolysis. Abridged discussions are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

Smirnov, M.V., and L.D. Yushina (Uralskiy filial AN SSSR—Ural Branch, Academy of Sciences, USSR). Cathodic Processes During the Precipitation of Thorium From Fused Electrolytes 348

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Polukarov, Yu. M., and K.M. Gorbunova (Institute of Physical Chemistry, Academy of Sciences, USSR). Some Theoretical Problems on the Electrocrystallization of Alloys

SKORCHELLETTI, Vladimir Vladimirovich; KHEYFETS, V.L., red.; KOTS, V.A., red.; ERLIKH, Ye.Ya., tekhn.red.

[Theoretical electrochemistry] Teoreticheskaia elektrokhimiia. Leningrad, Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1959. 606 p.

(Electrochemistry) (MIRA 13:1)

VAYSBURD, S.Ye., inzh.; KHEYFETS, V.L., kand.tekhn.nauk

Ionic model of a molten iron-bearing silicate and the activity coefficient of iron in liquid slags. Izv.vys.ucheb.zav.; chern. met. 2 no.5:11-18 My '59. (MIRA 12:9)

1. Leningradskiy institut Gipronikel'. Rekomendovano kafedroy elektropirometallurgii tsvetnykh metallov Leningradskogo politekhnicheskogo instituta.

(Activity coefficients) (Slag)

VAYSBURD, S.Ye.; KHEYFETS, V.L.

Electrochemical study of the interaction between metallic iron and slag (displacement of nickel from slags by the iron). Izv.vys.ucheb.zav.; tsvet.met. 2 no.6:76-84 '59.
(MIRA 13:4)

1. Institut "Gipronikel'"

(Electrochemistry) (Slag--Analysis) (Ion exchange)

5(3)

SOV/79-29-4-2/77

AUTHORS: Kheyfets, V. L., Rotinyan, A. L., Kozich, Ye. S.

TITLE: On the Value of the Redox Potential Co^{3+}/Co^{2+}, the Solubility Product $Co(OH)_3$, and the Interrelation of These Values (O velichine okislitel'no-vosstanovitel'nogo potentsiala Co^{3+}/Co^{2+}, proizvedenii rastvorimosti $Co(OH)_3$ i vzaimnoy svyazi etikh velichin)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1052-1055 (USSR)

ABSTRACT: The standard value of the redox potential of the reaction $Co^{3+}+e=Co^{2+}$ is usually given in publications according to the data of A. A. Noyes and T. I. Deal (Ref 1), and amounts to +1.84 V. They determined the potential values in 3 n nitric acid at unequal ratios Co^{3+}/Co^{2+}, and obtained values above this balanced oxidation potential, under given conditions. In these cases where the balanced value of the redox potential of the system to be investigated is above the oxidation potential, an accurate, direct determination of the redox potential is impossible in principle since practically the compensating potential

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On the Value of the Redox Potential Co^{3+}/Co^{2+}, the Solubility Product SOV/79-29-4-2/77
$Co(OH)_3$, and of the Interrelation of These Values

of the reactions $Me^{n+}+ze=Me^{(n-z)+}$ and $2H_2O-4e=O_2+4H^+$ is measured. Therefore the potential values obtained by these authors cannot be regarded as balanced and their standard potential not as confirmed. On the strength of their determinations the authors also consider the direct determination of the solubility product of $Co(OH)_3$ impossible. If the potential of the redox system $Me^{n+}/Me^{(n-z)+}$ is above the oxygen line and the hydrate of the highest oxide is difficultly soluble, a functional dependence between the value of the standard redox potential of the system and the solubility product of the hydrate of the higher oxide becomes manifest. This dependence was investigated in cobalt. The calculations of the authors permitted the conclusion that a more accurate determination of the values of the standard redox potential Co^{3+}/Co^{2+} and of the solubility product of the cobalt hydrate is desirable. There are 1 figure and 4 references, 2 of which are Soviet.

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SOV/79-29-4-2/77

On the Value of the Redox Potential Co^{3+}/Co^{2+}, the Solubility Product $Co(OH)_3$, and the Interrelation of These Values

ASSOCIATION: Institut nikel'-kobal'tovoy i olovyannoy promyshlennosti Leningrad (Institute of Industrial Nickel-, Cobalt-, and Tin Products, Leningrad)

SUBMITTED: February 19, 1958

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5(4)

SOV/80-32-5-18/52

AUTHORS: Kheyfets, V.L., Sheynin, A.B.

TITLE: The Inter-Phase Tension in Some Sulfide-Silicate Systems at High Temperature

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 5, pp 1039-1042 (USSR)

ABSTRACT: The measurement of the surface tension on the boundary of two liquid phases is very difficult. For this purpose a new method has been applied, based on the determination of the boundary angle between the two phases. At a low size of the immersed droplet both its halves can be regarded as segments of a circle, from which the angle can be calculated. A similar idea has been used in the method employed by Mikiashvili, Samarin and Tsylev /Refs 2,3/. Molten systems of the type matte-slag are investigated here, which are important for the non-ferrous metallurgy. The surface tension on the boundaries matte-gas and slag-gas was determined by the method of the maximum pressure of gas bubbles /Refs 4, 5/. A slag drop of 0.2 - 0.5 g was immersed into the system which was kept in a flow of nitrogen for 30 min at 1,300°C. Then the size of the droplet magnified 10-fold was projected on a screen. The error was 5-10%. Both the surface and inter-phase

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SOV/80-32-5-18/52

The Inter-Phase Tension in Some Sulfide-Silicate Systems at High Temperature

tension decrease with the increase of iron sulfide content in the melt. Analogous relations were found by Sryvalin, Yesin and Nikitin /Refs 8,9/ for the systems Cu_2S-FeS and Cu_2S-Ni_3S_2. For the calculation of the inter-phase tension the data of Vanyukov and Ivanov /Ref 10/ were also used. The surface tension of slags is the lower, the higher the silica content in them. The substitution of CaO by FeO increases the inter-phase tension. The "mechanical" losses in the nickel production can be reduced by increasing the inter-phase tension which facilitates the aggregation of the matte reguli. The surface tension increases with the decrease of the nickel content in the matte.
There are: 3 graphs, 1 diagram and 10 references, 7 of which are Soviet, 2 English and 1 German.

Card 2/3

SOV/80-32-5-18/52

The Inter-Phase Tension in Some Sulfide-Silicate Systems at High Temperature

ASSOCIATION: Proyektnyy i nauchno-issledovatel-skiy institut nikelevoy, kobal'tovoy i olovyannoy promyshlennosti (Planning and Scientific Research Institute of the Nickel, Cobalt and Tin Industry)

SUBMITTED: February 18, 1958

Card 3/3

5.4130,5.1310,5.4600

75655
SOV/80-32-10-4/51

AUTHORS: Vaysburd, S. Ye., Kheyfets, V. L.

TITLE: Concerning the State of Cuprous Sulfide in Iron-Bearing Molten Silicates

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2153-2157 (USSR)

ABSTRACT: This is a study of the above silicates with addition of iron and copper sulfides. Samples: silicate melts of the $CaO-FeO-SiO_2$ type containing some MgO and Fe_2O_3, and a multicomponent slag of shaft furnace smelting. Test conditions: MgO crucibles; nitrogen atmosphere; 1,250 ± 5°. After measurement of the decomposition voltage E, quenching, and removal of sulfide and metal inclusions, the silicates were analyzed chemically; the slag ionic composition and decomposition voltage $E^{0'}$ were calculated, taking into account the trivalent iron content. The presence of S introduced as FeS did not affect the anode potential since anode polarization

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Concerning the State of Cuprous Sulfide in Iron-Bearing Molten Silicates

75655
SOV/80-32-10-4/51

was insignificant, and highly concentrated iron was first to be oxidized at the anode. The presence of Cu_2O caused a sharp drop in decomposition voltage; this indicates that, owing to dissociation to Cu^+ ions, metal (alloy) cathode plating started at a cathode potential higher with respect to a comparable slag containing no Cu. On the other hand, since addition of CuS_2 did not affect the cathode potential, CuS_2 remained undissociated. FeS and CuS_2 concentrations on par with the S and Cu content of industrial slags have no effect on the decomposition voltage and hence on iron activity (γ); knowledge of slag component-oxide content will, regardless of sulfur content, suffice for the industrial application of E and γ. There is 1 table; 1 figure; and 8 references, 6 Soviet, 1 British, 1 German. The British reference is: Bockris, J., Kitchener, G., Ignatowicz, S., Fomlinson, J., Faraday Soc, 48, 75 (1952).

Card 2/3

Concerning the State of Cuprous Sulfide in Iron-Bearing Molten Silicates 75655
SOV/80-32-10-4/51

ASSOCIATION: Planning and Scientific Research Institute of the State Institute for the Design and Planning of the Nickel Industry (Proyektnyy i nauchno-issledovatel'skiy institut gipronikel')

SUBMITTED: September 30, 1958

Card 3/3

5(4) SOV/76-33-9-9/37

AUTHORS: Kheyfets, V. L., Sheynin, A. B.

TITLE: Oscillographic Investigation of the Kinetics of Electrode Processes. I) Method

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 1945-1950 (USSR)

ABSTRACT: An investigation of the kinetics of electrode processes by means of oscillographic diagrams with the coordinates potential-time as obtained by the switching on and off of the polarization current was already performed by V. A. Royter et al (Refs 1-3). A. T. Vagramyan and Z. A. Solov'yeva (Ref 8) pointed out that the short recording time of the oscillographic method is an advantage of such kind that the influence of a surface change of the electrode is avoided. Citing the works of V. A. Royter, V. A. Yuza, Ye. S. Poluyan (Ref 1) and V. I. Kravtsov (Ref 6) a method of analyzing oscillograms as obtained by switching on and off of the current is described in the present paper, which may be applied to arbitrary amounts of polarization and permits the determination of the amount of the exchange current i_0 and the coefficients α and β. The effect of a parallel proceeding electrochemical secondary

Card 1/2

SOV/76-33-9-9/37

Oscillographic Investigation of the Kinetics of Electrode Processes. I) Method

process on the electrode upon the shape of the oscillogram is discussed and confirmed that no such effect may be ascertained as long as the contribution of the by-process does not exceed 20%. The analysis of the influence of concentration changes on the phase boundary electrode-electrolyte upon oscillograms confirmed (equations (17) and (18)) that for cathode polarization the current change is proportional to activity changes on the boundary electrode-electrolyte so that the described method is not applicable, while it may be applied for anode polarization that is not too low. There are 10 references, 8 of which are Soviet.

ASSOCIATION: Institut nikelevoy, kobal'tovoy i olovyannoy promyshlennosti Gipronikel' (Institute of the Nickel, Cobalt and Tin Industry Gipronikel')

SUBMITTED: February 19, 1958

Card 2/2

KHEYFETS, V.L.; KRASIKOV, B.S.

Effect of surface-active substances on the kinetics of discharge of certain cations. Uch.zap.LGU no.272:3-30 '59.
(MIRA 13:1)

1. Kafedra elektrokhimii Leningradskogo ordena Lenina gosudarstvennogo universiteta im.A.A.Zhdanova.
(Cations) (Electrochemistry)

KHEYFETS, V. L., Doc. Tech Sci, "Works in the field of the technology, electrochemistry, and physical chemistry of the production of metals." Leningrad, 1961. (Min of Higher and Sec Spec Ed RSFSR, Leningrad Order of Labor Red Banner Technol Inst im Lensovet). (KL, 3-61, 212).

ROTINYAN, A.L.; KHEYFETS, V.L.; NIKOLAYEVA, S.A.

Solubility product of $Co(OH)_3$ and standard redox potential for Co^{3-}/Co^{2-}. Zhur. neorg. khim. 6 no.1:21-26 '61. (MIRA 14:2)
(Cobalt hydroxide)

ZINOV'YEV, V.A.; SHEYNIN, A.B.; KHEYFETS, V.L.

Oscillographic study of the kinetics of electrode processes. Part 2: Cobalt electrode in cobalt sulfate solutions. Zhur. fiz. khim. 35 no.1:98-101 Ja'61. (MIRA 14:2)

1. Gosudarstvennyy institut nikelevoy, kobal'tovoy i olobyannoy promyshlennosti.

(Cobalt)

SHEYNIN, A.B.; ZINOV'YEV, B.A.; KHEYFETS, V.L. (Leningrad)

Oscillographic study of the kinetics of electrode processes. Part 3: Cobalt electrode in solutions of various compositions. Zhur. fiz. khim. 35 no.3:513-516 Mr '61. (MIRA 14:3)

1. Institut nikelevoy, kobal'tovoy i olovyannoy promyshlennosti Leningrad.

(Electrodes, Cobalt)

KHEYFETS, V.L.; ROTINYAN, A.L.; KALGANOVA, O.P.; LEVENFISH, P.G.

Rules of a simultaneous electrochemical discharge of a basic metal and admixtures, the depolarization effect taken into account. Zhur. prikl.khim. 34 no.7:1519-1528 Jl '61. (MIRA 14:7)
(Electroplating) (Polarization (Electricity))

VAYSBURD, S.Ye.; VERNER, B.F.; KHEYFETS, V.L.

Activity of iron in Fe - Ni - S melts. Izv.vys.ucheb.zav.; tsvet.met. 5 no.1:59-67 '62. (MIRA 15:2)

1. Proyektnyy i nauchno-issledovatel'skiy institut "Gipronikel'".
(Activity coefficients) (Iron sulfides) (Nickel sulfides)

REMEN', T.F.; KHEYFETS, V.L.; VAYSBURD, S.Ye.

Activity of metals in binary systems Fe - S, Co - S and Ni - S.
Izv. vys. ucheb. zav.; tsvet. met. 4 no.6:58-64 '61.
(MIRA 14:12)

1. Proyektnyy i nauchno-issledovatel'skiy institut "Gipronikel'".
(Sulfides—Metallurgy)
(Activity coefficients)

ROTINYAN, Aleksandr Leonovich, doktor tekhn. nauk; OVCHINNIKOVA, Tamara Mikhaylovna, inzh.; KHEYFETS, V.L., red.; FREGER, D.P., red.izd-va; BELOGUROVA, I.A., tekhn. red.

[Measuring acidity in the cathode layer during the electrolysis of aqueous solutions] Izmerenie kislotnosti v prikatodnom sloe pri elektrolize vodnykh rastvorov. Leningrad, 1962. 18 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Zashchitnye pokrytiia, no.7) (MIRA 16:3)

(Electrolysis) (Hydrogen-ion concentration)

REMEN', T.F.; KHEYFETS, V.L.; VAYSBURD, S.Ye.

Iron activity in the system Cu - Fe - S. Izv. vys. ucheb. zav.; tsvet. met. 5 no.6:57-61 '62. (MIRA 16:6)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy nikelevoy promyshlennosti.

(Systems(Chemistry))
(Iron—Testing)
(Activity coefficients)

KHEYFETS, V.L.; SHEYNIN, A.B.; KRASIL'SHCHIK, B.Ya.; FISHER, Yu.V.

Measurement of the differential capacity of electrodes and of the resistance of electrochemical reactions by means of alternating current. Zhur.prikl.khim. 35 no.7:1550-1556 Jl '62. (MIRA 15:8)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy promyshlennosti.
(Electrodes) (Electrochemistry)

S/080/63/036/001/023/026
D204/D307

AUTHORS: Remen', T.F., Kheyfets, V.L., and Vaysburd, S.Ye.

TITLE: The activity of sulfur in binary systems Fe-S, Co-S, and Ni-S

PERIODICAL: Zhurnal prikladnoy khimii, v. 36, no. 1, 1963, 218 - 220

TEXT: The present work is a continuation of an earlier study (Izv. vuzov, Tsvet. Metallurg., 6, 58 (1961)). The activities, a_S, were determined from emf measurements, at 1250°C, with a solid metallic reference electrode, and the calculations were performed by graphical integration of the Gibbs-Duhem equation in the form suggested by Vagner (Termodinamika splavov [Thermodynamics of alloys], Metallurgizdat (1957))

$$\lg \gamma_S = \int_0^{N_{Me}} \frac{\lg \gamma_{Me}}{(1 - N_{Me})^2} dN_{Me} - \frac{N_{Me}}{1 - N_{Me}} \lg \gamma_{Me} . \qquad (1)$$

Card 1/2

S/080/63/036/001/023/026
D204/D307

The activity of sulfur ...

taking a_S as unity for compositions to FeS, CoS, and Ni_3S_2. The results are presented in graphical form and show (a) strong negative deviations of S from ideality in all 3 cases, indicating strong bonding of S to Fe, Co and Ni, particularly for low atom % S, (b) Co-S bond is stronger than Fe-S bond, (c) good agreement with available literature data, and (d) dependability of the method used. There are 3 figures.

SUBMITTED: March 26, 1962

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Card 2/2

KRASIKOV, Boris Sergeyevich; KHEYFETS, V.L., red.; FREGER, D.P., red.izd-va; GVIRTS, V.L., tekhn. red.

[Potentials of the zero charge of metals and alloys] Potentsialy nulevogo zariada metallov i splavov. Leningrad, 1963. 17 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Zashchita metallov ot korrozii, iznosostoikie antifriktsionnye i dekorativnye pokrytiia, no.7) (MIRA 17:4)

L 23870-65 FSS-2/EWT(1)/EWG(k)/EPF(c)/EEC(k)-2/EPF(n)-2/T-2/EED-2/FS(b)
[illegible] Pu-4 RWH /WW/MLK

ACCESSION NR: AT5002492 S/0000/64/000/000/0118/0129

AUTHOR: Gran', T.V.; Kheyfets, V.L.

TITLE: Electrolytic refining of nickel with a chloride electrolyte B+1
18 27 27

SOURCE: Vsesoyuznyy seminar po prikladnoy elektrokhimii. 5th, Dnepropetrovsk, 1962.
[illegible] ergiya khlorido (Hydroelectrometallurgy [illegible] doklady
[illegible], Naukova dumka, 1964, 118-129

TOPIC TAGS: nickel refining, electrolytic refining, nickel chloride electrolysis, [illegible] nickel, polyvinyl chloride diaphragm

ABSTRACT: In order to develop a more efficient electrolyte for nickel than the sulfate-

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L 23870-65

10

ACCESSION NR: AT5002492

[illegible] current density so as to deposit equal layers of metal. Two to four tests [illegible] each concentration and each current density in order to record averages. [illegible] gives the results. Defects [illegible]

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L 23970-65

ACCESSION NR: AT5002492

chloride electrolytes appears to have a very promising industrial future. Orig. art. has: 5 figures, 6 tables and 1 formula.

ASSOCIATION: Gipronikel', Leningrad

SUBMITTED: 06Jul64 ENCL: 01 SUB CODE: MM

NO REF SOV: 011 OTHER: 004

Card 3/4

L 23870-65

ACCESSION NR: AT5002492 ENCLOSURE: 01

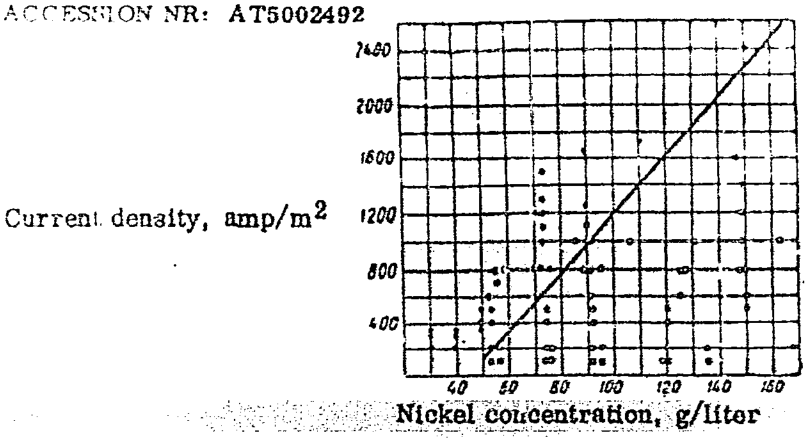

Fig. 1. Effect of nickel concentration and current density on the quality of cathode metal deposits: c - deposits without defects, e - defective deposits

SHEYNIN, A.B.; RYTVINSKAYA, M.V.; KHEYFETS, V.L. (Leningrad)

Oscillographic study of the kinetics of electrode processes. Part 4. Zhur.fiz.khim. 38 no.11:2562-2568 N '64.

(MIRA 18:2)

1. Nauchno-issledovatel'skiy i proyektnyy institut "Gipronikel'".

ROTINYAN, A.L.; KHEYFETS, V.L.; ZHIVOTINSKIY, P.B.

Contribution to the theory of electrolysis of alkali metal chlorides in baths with a filtering diaphragm. Zhur. prikl. khim. 38 no.1:78-83 Ja '65. (MIRA 18:3)

POZIN, L.M.; KHEYFETS, V.L.

Amperometric study of the kinetics of the reaction of potassium persulfate with ferrous sulfate. Zhur.prikl. khim. 38 no.11:2469-2472 N '65. (MIRA 18:12)

1. Submitted March 15, 1965.

KHEYFETS, V.S.

Dilatometric measurements of glasses. Zav. lab. 30 no.5:573-575 '64.
(MIRA 17:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

ACCESSION NR: AP4040529 S/0080/64/037/006/1369/1371

AUTHOR: Vargin, V. V.; Kheyfets, V. S.

TITLE: Formation and properties of glasses in the $Na_2O-ZrO_2-SiO_2$ system

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 6, 1964, 1369-1371

TOPIC TAGS: sodium zirconium silicate glass, glass formation, crystallized glass, glass physical property, glass acid resistance, transparent glass

ABSTRACT: The increasing importance of zirconium-containing glasses, enamels, and glazes prompted the study of the $Na_2O-ZrO_2-SiO_2$ system within wide composition and temperature ranges. Partially crystallized glasses were obtained which contained in mol % 35—80 SiO_2, 5—35 ZrO_2, and 10—45 Na_2O. The triangular phase diagrams show the limits of crystallization, coefficients of thermal expansion, and acid resistance of all glasses within the composition range studied. The highest crystallization capability was detected in high-alkali transparent glasses. Both decrease in the linear thermal expansion in the 20—400C range and an increase in acid resistance with an increasing ZrO_2 content in

Card 1/2

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15.2120

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S/081/60/000/015/011/014
A006/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 15, p. 375, # 62195

AUTHORS: Gutorova, L.L., Kheyfets, V.S.

TITLE: The Effect of Fluorine on the Viscosity of Glasses of the Na_2O-BaO-SiO_2, Na_2O- PbO - SiO_2 and Na_2O - MgO - SiO_2 Systems in the Annealing Temperature Range

PERIODICAL: Tr. Leningr. tekhnol. in-ta im. Lensoveta, 1959, No. 58, pp. 75-82

TEXT: The following cations were selected to investigate the effect of F according to the principle of their rôle in glass structure: Pb^{2+} - a cation included in the structural lattice of glass, Ba^{2+} - a cation, not included in the structural lattice of glass; Mg^{2+} - a cation occupying an intermediate position but being, however, closer to Ba^{2+}. To eutectics of 73 mol.% SiO_2 and 27 mol.% Na_2O, Pb, Ba and Mg oxides are added; moreover, 3, 6, 9 and 12 weight portions of F were added to each series of glasses. It was found that the softening temperature of glass ($10^{12.5}$ poise viscosity) depended on the presence of bivalent metal oxide and on the amount of F. A higher SiO_2 : Na_2O ratio in

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83642

S/081/60/000/015/011/014
A006/A001

The Effect of Fluorine on the Viscosity of Glasses of the Na_2O - BaO - SiO_2, Na_2O - PbO - SiO_2 and Na_2O - MgO - SiO_2 Systems in the Annealing Temperature Range

the glass promotes an increase of crystallization and viscosity. PbO in glass behaves to a certain degree analogous to SiO_2. The composition of the crystalline phase in opaque (?) ("zaglushennyy") glasses was studied by the microscopic and roentgenographic methods. A theoretical hypothesis is advanced on the effect of individual oxides of bivalent metals on the structure of fluoro-containing glasses.

Z. Mikhaylova

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

VARGIN, V.V.; KHEYFETS, V.S.

Glass formation and properties of glasses of the system $Na_2O - ZrO_2 - SiO_2$. Zhur. prikl. khim. 37 no.6:1369-1371 Je '64. (MIRA 18:3)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

L [illegible]-65 EWT(m)/EWP(q) Pq-4 WH
ACCESSION NR: AP4045181 S/0080/64/037/009/1915/1920

Vargin, V. V., Kneyfets, V. S.

TITLE: Certain properties of glasses of the Na_2O-B_2O_3-ZrO_2-SiO_2 system

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 9, 1964, 1915-1920

TOPIC TAGS: boron glass, zirconium glass, chemical stability, crystallinity, coefficient of thermal expansion, deformation temperature, transparent glass, opaque glass

ABSTRACT: Compositions of the Na_2O-B_2O_3-ZrO_2-SiO_2 system containing 5-30 mol% B_2O_3, 10-80 SiO_2, 5-20 ZrO_2 and 10-40 Na_2O were synthesized by heating at 1250-1350 in quartz crucibles. Their crystallinity, coefficient of thermal expansion, deformation temperature and chemical stability in water, 20% HCl and 2N caustic were determined. Glasses containing 15-20 mol% ZrC_2 were transparent. In glasses that crystallized, the composition of the crystalline phase depends on the ZrO_2:Na_2O molecular ratio in the glass: as a rule when

$$ZrO_2/Na_2O \geq 1,$$

Card 1/2

L 21137-65

ACCESSION NR: AP4045191

ZrO_2 crystallized. In only a few instances sodium zirconosilicate crystallized. When the glass contained large amounts of boron anhydride, significant amounts of ZrO_2 could be added without increasing the viscosity noticeably. The deformation temperature increased with increase in ZrO_2 content, but as B_2O_3 was increased the deformation temperature difference diminished; when B_2O_3 content reached 30% these temperatures were almost independent of ZrO_2 content. 30-40% alkali could be used in a zirconium glass without impairing chemical stability. In the low Na_2O (10-20%) glasses the coefficient of thermal expansion was independent of the SiO_2:ZrO_2 ratio; with higher Na_2O content the thermal expansion decreased with increase in ZrO_2. This was explained by the existence of two types of structure apparently associated with the transition of Zr^{4+} from coordination of 8 to 6 as the basicity of the glass increased. "V. I. Tarakanov took the (x-ray) photographs." "Chemical stability was determined by V. M. Smirnov." Orig. art. has: 2 tables.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute)

SUBMITTED: 21Nov63 ENCL: 00

SUB CODE: MT NO REF SOV: 01 OTHER: 004

Card 2/2

VARGIN, V.V.; KHEYFETS, V.S.

Crystallization of system $Na_2O-ZrO_2-SiO_2$ glass. Izv.vys.ucheb.zav.; khim. i khim.tekh. 8 no.2:285-290 '65. (MIRA 18:8)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta, kafedra tekhnologii stekla.

L 40783-65 EWG(j)/EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EWP(i)/EPF(n)-2/EPR/T/
EPA(w)-2/EWP(t)/EPA(bb)-2/EWP(b)/EWA(c) Pab-10/Pq-4/Pr-4/Ps-[illegible]/Pt- Pu-
ACCESSION NR: AP5006237 IJP(c) JD/WW/JG/WH S/0072/65/000/00[illegible]/0026/0028

[illegible], V. [illegible] (Professor); Kheyfets, V. S. (Engineer) 1/2

[illegible]ization processes in zirconium glasses [illegible] 5

[illegible]eramika, no. 2, 1965, 26-2[illegible]

[illegible], enamel, crystallization, [illegible] crystalliza-

[illegible] crystallization processes and [illegible] [illegible] SiO_2, $Na_2O-B_2O_3$-Zr[illegible] [illegible] components of these systems [illegible] sys- [illegible]

Card 1/8

L 40783-65
ACCESSION NR: AP5006237

crystalline phase is ZrO_2. Only in certain highly alkaline members of the system are sodium zirconium silicates crystallized. Glasses with a low content of ZrO_2 [illegible] ...lly not crystallized under the experimental [illegible] three-component glasses the main [illegible] B_2O_3 or

[illegible] not crystallized under the experimental conditions. [illegible] content of ZrO_2
Al_2O_3 was added to three-component glasses, the melt crystallized under rapid cooling conditions at low ZrO_2 contents: in the Na_2O-B_2O_3-ZrO_2-SiO_2 system at 15-20 mol %, and in the Na_2O-Al_2O_3-ZrO_2-SiO_2 system at [illegible] mol %. The ZrO_2 com- [illegible] generally separated in zirconium glasses which have been crystallized [illegible] rapid cooling conditions. On the other hand when transparent zirconium glasses are crystallized in gradient furnaces, sodium zirconium silicates are separated, most frequently $Na_2O \cdot ZrO_2 \cdot 2SiO_2$. A comparison of the crystallization [illegible] variously composed glasses indicates [illegible] glasses. Substitution [illegible] oxide for [illegible] solidification and aids crystallization [illegible] dioxide. [illegible] this effect is apparently the fact [illegible] the glass with the alkali [illegible] in the form of crystals. Therefore the [illegible] effect of B_2O_3 and Al_2O_3 is observed in low alkali glasses. Orig. art. [illegible] figures and 1 table.

Card 2/3

KUZNETSOVA, G.N.; KHEYFETS, V.S.; SHEVYAKOV, A.M.

Infrared spectra and structural characteristics of glasses of the system $Na_2O - B_2O_3 - ZrO_2 - SiO_2$. Zhur. prikl. spekt. 3 no. 2:151-155 Ag '65. (MIRA 18:12)

1. Submitted Nov. 17, 1964.

[illegible] EWT(1)/T/EPF(n)-2 IJP(c) [illegible]

[illegible]ION NR: AP5020502

UR/0078/65/010/008/1910/1911
[illegible] 546.274

[illegible]stalline phases in glasses of the Na_2O-B_2O_3-ZrO_2-SiO_2 system 15,44
21,55

SOURCE: Zhurnal neorganicheskoy khimii, [illegible]

[illegible] glass, crystallization, zirconate

[illegible]-four compositions were prepared [illegible] of the corresponding tetra[illegible] [illegible] system [illegible] 30 mol %, and the comp[illegible] [illegible] possible [illegible]

[illegible] $ZrO_2 \cdot 2SiO_2$. The entire group of [illegible] showed the presence of sodium zirconium [illegible] and 30 mol %

Card [illegible]

[illegible]

Na$_2$O did not crystallize under the conditions of the experiment [illegible] 3

glasses in which ZrO_2 crystallizes are low [illegible]

[illegible] separation of ZrO_2 in the crystalline phase [illegible]

[illegible] When $ZrO_2/Na_2O < 1$, sodium [illegible] in sili-

The substitution of B_2O_3 for SiO_2 promotes [illegible] silicates separate in the crys- [illegible]

the four-component glasses studied, and the separation of zirconium [illegible] the crystallization of

of sodium zirconium silicates in the crystalline phase. [illegible] dioxide instead [illegible] figures.

[illegible] Leningradskiy tekhnologicheskiy institut [illegible]

[illegible] institute)

AUTHOR: Kheyfets, V.S.

20
B

TITLE: Electrical conductivity 15 **of zirconium glasses** 15

SOURCE: **Zhurnal fizicheskoy khimii**, v. 39, no. 6, 1965, 1521-1522

TOPIC TAGS: glass conductivity, zirconium dioxide, electric conductivity, zirconium glass

ABSTRACT: The electrical conductivity of zirconium glasses was [illegible] in order to [illegible] the position of zirconium in the structure [illegible] temperature [illegible] of the electrical conductivity was determined in three-component sodium-zirconium-silicate glasses, in which the conduction is accomplished by sodium ions. [illegible] the Enclosure shows the conductivity as a function of [illegible] substitution of [illegible] in glasses of various Na_2O contents. [illegible] small amounts

Card 1/4 [illegible] enclosure clearly shows the difference in

[illegible]3-65

ACCESSION NR: AP5015094

2

[illegible] of these oxides. Finally, as the Na [illegible] an S-shaped [illegible] obtained which resembles the curve [illegible] alumino- [illegible] glasses. "Most of the measurements were made [illegible] N. [illegible] kovskaya." [illegible] has: 2 figures and 1 table.

[illegible] TION: Leningradskiy tekhnologicheskiy [illegible] Leningrad Technological Institute)

SUBMITTED: 22Jul64 ENCL: 02 SUB CODE: MT

[illegible] SOV: 005 OTHER: 001

KHEYFETS, V.Z., kand.tekhn.nauk; ARST, G.A., inzh.; IVANOV, K.K., inzh.;
SOLODOVNIKOV, V.A., inzh.

Devices for the control of underwater hydraulic engineering operations. Transp.stroi. 15 no.10:52-53 O '65.

(MIRA 18:12)

KHEYFETS, Yu.I., inzh.; ORYSHICH, I.V., inzh.

Effect of aging conditions on the amount of residual austenite in fuel system equipment parts. Metalloved.i term.obr.met. no.4:59-61 Ap '62. (MIRA 15:4)
(Steel--Hardening) (Metals, Effect of temperature on)

SOV/124-58-11-12788

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 124 (USSR)

AUTHORS: Mashkovich, S. A., Kheyfets, Ya. M.

TITLE: Operational Forecasting Experience Relative to the Mean Monthly Surface-temperature Anomaly Using the Method of Ye. N. Blinova (Opyt sostavleniya operativnykh prognozov srednemesyachnoy anomalii nazemnoy temperatury po metodu Ye. N. Blinovoy)

PERIODICAL: Tr. Tsentr. in-ta prognozov, 1957, Nr 60, pp 37-43

ABSTRACT: The authors adduce the results of the compilation of operational forecasts relative to the mean monthly surface-temperature anomaly according to the method of Ye. N. Blinova. The calculations were performed on electric "Mercedes-Euklid" calculating machines. The fundamental forecasting equation for the nonzonal and nonstationary portions of the temperature has the form

$$\left(\frac{\partial}{\partial t} + \alpha \frac{\partial}{\partial \lambda}\right) T - \frac{k''}{a^2} \Delta T - \frac{\partial}{\partial z}\left(k' \frac{\partial T}{\partial z}\right) = \frac{1}{a^2 \sin \theta} \frac{d\overline{T}}{d\theta} \frac{\partial \psi}{\partial \lambda}$$

Here T and ψ are the nonzonal, nonstationary portions of the temperature and stream functions, respectively; t is the time,

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Operational Forecasting Experience Relative to the Mean Monthly (cont.)

λ is the longitude of the locality; ϕ is the geographic latitude; $\theta = 0.5\pi - \phi$; a is the radius of the Earth; z is the vertical coordinate; Δ is the twodimensional Laplace operator in spherical coordinates; k' is the turbulent thermal diffusivity coefficient in the vertical direction; k'' is the horizontal large-scale mixing coefficient; α is the relative angular velocity of the atmosphere relative to the Earth; $\bar{T}$ is the zonal temperature, assumed to be given by the formula $\bar{T} = T_0 + M \sin^2 \theta$; T_0 is the temperature at the pole; and M is the temperature difference between the pole and the equator. The following initial and boundary conditions were assumed in the solution of the problem: At the starting moment the temperature is to be a known function of the coordinates θ, λ, and z. At the ground surface the condition of heat balance is fulfilled. Here the nonstationary portion of the temperature of the underlying surface is determined separately from the equation of heat conductivity, assuming that it is known at the starting moment. In addition it is assumed that the temperature varies continuously in the transition from the soil into the atmosphere. (The process is assumed to be a steady-state one). The forecasting formula for the prognostic computation of the mean monthly surface-temperature anomaly proposed by Ye. N. Blinova has the following appearance

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Operational Forecasting Experience Relative to the Mean Monthly (cont.)

$$\tilde{T} = \frac{2M}{a^2(\alpha+\omega)} \Sigma [a_m(\theta) \cos m\lambda + b_m(\theta) \sin m\lambda]$$

where

$$a_m(\theta) = \Sigma C_n^m Z_{1n}^m(\theta) - D_n^m Z_{2n}^m(\theta), \quad b_m(\theta) = \Sigma D_n^m Z_{1n}^m(\theta) - C_n^m Z_{2n}^m(\theta).$$

Here $\omega = 7.20 \times 10^{-5}$ sec^{-1} is the angular velocity of the rotation of the Earth; C_n^m and D_n^m are determined by means of the coefficient of the expansion of the initial field of altitudes of the 500-mb surface; and $Z_{1n}^m(\theta)$ are certain standard functions that contain as parameters the circulation index (α/ω) and other constants which characterize the physical properties of the soil and the air. Using this method, starting in 1952, the Dynamic Meteorology Section of the Tsentral'nyy institut prognosov (Central Forecasting Institute) has prepared forecasts of the mean monthly surface temperature for the Eurasian land mass. The solution obtained in the referenced work depends essentially on the circulation index which is variable both in space and in time; that quantity must be obtained first. Just how great the importance of the correct determination of that parameter is has been shown by computations in which the values of the actual circulation

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Operational Forecasting Experience Relative to the Mean Monthly (cont.)

index were used. The attached tabulation shows the results of computations for 1952, 1953, 1954, and 1955. The operational forecast verification of the mean monthly surface temperature over the territory of the USSR (in percent) is shown as follows: I, Long-range Forecasting Section; II, Dynamic Meteorology Section; III, Dynamic Meteorology Section utilizing the actual circulation index.

Year	1952	1953	1954	1955	Four-year Mean
I	74.0	74.4	77.7	71.8	74.5
II	76.2	72.0	78.4	77.0	75.0
III	83.8	80.3	82.3	80.1	81.5

Sh. A. Musayelyan

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Kheyfets, Ya.M.,

AUTHORS: Musayelyan, Sh. A., Kheyfets, Ya. M. 50-2-1/22

TITLE: **Experimental Application of the "Pogoda" Electronic Computer in Forecasting Mean Monthly Air Temperature Anomaly**

(Opyt primeneniya elektronnoy vychislitel'noy mashiny "Pogoda" dlya prognoza srednemesyachnoy anomalii temperatury vozdukha).

PERIODICAL: Meterorologiya i Gidrologiya, 1958, Nr 2, pp. 3-9 (USSR)

ABSTRACT: The weather forecast by means of methode of hydrodynamics necessitates extensive computations within limited time. Therefore, computers are used for this purpose. Besides electronic universal computers there exist special machines for the solution of a certain range of problems. Such machines are less complicated and can be more easily operated. As to their perform mance they are equal to the electronic universal computers at the solution of problems of the above kind.

Here the methods of the computations of the average monthly temperature deviations by means of the electronic computor "Pogoda" is given.

The theoretical foundations of this methods are works

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Experimental Application of the "Pogoda" Electronic Computer in Forecasting Mean Monthly Air Temperature Anomaly

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by Mrs. Ye. N. Blinova, She assumes that the atmospheric motions are an excitation acting on the local (zonal) current, which adjusts itself to the thermal influx and thus, a new equation for the nonzonal and nonsteady temperature deviations is obtained. This equation establishes the relations between the local changes of temperature deviations and the important factors of atmospheric circulation.

To these factors belong zonal shiftings of temperature, meridional shifting of temperature, horizontal mixture of greater extent and vertical heat conductivity.

The whole process of computation according to this scheme consists of the following stages:

1) Preparation of data
2) Computation of the Fourier coefficient for each width of the initial field
3) Computation of the expansion coefficient of the initial field in an algebraic or geometric progression according to the functions H_n^m.

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3,5140

AUTHORS: Mashkovich, S. A. and Kheyfets, Ya. M.

TITLE: The theory of long-term forecasting with allowance for the atmosphere's vertical stratification and turbulent mixing

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 1, 1962, 57, abstract 1B365 (Tr. Tsentr. in-ta prognozov, no. 93, 1960, 3-15)

TEXT: Equations, linearized in respect of an east-west transfer (depending on the altitude), are considered for the eddying and inflow of heat in the atmosphere over a speherical earth (in the reading system moving together with a west-east transfer at a certain average level with allowance for horizontal large-scale turbulent heat-conductivity). The flow function and the vertical velocity w are unknowns in these equations. The zero parity of the velocity at an average level and of the vertical velocity at sea-level is taken as the marginal height condition. An initial value is

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The theory of ...

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assigned for the flow function in the whole atmosphere. The transition to an end-difference scheme for the height is accomplished with the calculation of data at three levels (one of which is the sea-level) so that the values of the flow function at three levels and of the vertical velocity at two levels become unknown quantities. In addition to this the known equation of Ye. N. Blinova is derived for the flow function at an average level, so that the system of four equation with righthand parts, which depend on the solution of Ye. N. Blinova's equation, has to be actually solved. These four equations are solved by means of spherical-function series, and a numerical analysis of the stability of elementary wave solutions in time is made with certain fixed values entering into the meteorologic-parameter equations, i.e. the supposed parts of the correspondingly proper frequencies are determined. All elementary waves appear to be stable (apart from the weak instability of the longest waves), from which the conclusion is drawn about the possibility of using the considered linearized three-level model for purposes of long-term forecasting. /Abstractor's note: Complete translation./

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S/124/62/000/003/038/052
D237/D302

AUTHORS: Kheyfets, Ya.M., and Shishkova, I.A.

TITLE: An improved method of long-term forecasting by means of absolute topography charts according to a barotropic model

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1962, 110, abstract 3B705 (Tr. Tsentr. in-ta prognozov, 1960, no. 93, 16 - 24)

TEXT: A system of calculation is given for long-term forecasting of absolute topography introduced by Ye.N. Blinova (Dokl. AN SSSR, 1943, 39, no. 7). The present method differs insofar as to increase the density of the set of initial data, and to include more Legendre polynomials into the series representing the solution of the problem. While, in the former system, the initial data were obtained from the set of points with the spread of 5° latitude and 15° longitude and the Legendre series used had $m \leqslant 12$ and $n \leqslant 20$, in the new method the data are obtained for every 5° latitude and 5°

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longitude, and the Legendre series utilizes all numbers with m $\leqslant$ 24 and n $\leqslant$ 56. Hence, the mean absolute error due to the representation of the initial field in terms of a series in spherical functions is diminished. Numerical formulas are given, with a short description of the calculations as performed on the 'POGODA' computer. An example of the forecast AT-700 is given, covering five 24-hour periods. It should be noted that the first examples of forecasting by the method of the hydro-dynamic theory of Blinova were given by Ye.N. Blinova herself in 1946, and not in 1947-49 as given in this paper. [Abstractor's note: Complete translation].

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MASHKOVICH, S.A.; KHEYFETS, Ya.M.

Letter to the editor. Meteor. i gidrol. no.4:59 Ap '61. (MIRA 14:3)

(Weather forecasting)

MASHKOVICH, S.A.; KHEYFETS, Ya.M.

Some characteristics of zonal atmospheric circulation over the Northern Hemisphere during the International Geophysical Year. Trudy TSIP no.111:50-51 '61. (MIRA 14:9)
(Atmosphere)

MASHKOVICH, S.A.; KHEYFETS, Ya.M.

Practice in numerical forecasting of ground pressure for some days in advance. Trudy TSIP no.126:8-19 '63. (MIRA 16:11)

KHEYFETS, Ya.M.

Organization of aerological information for analysis. Trudy MMTS no.7:13-22 '65. (MIRA 18:7)

KHEYFETS, Ya.M.

Construction of an information system for operative incoming data. Trudy MMTS no.10:8-30 '65. (MIRA 19:1)

L 38323-66 EEC(k)-2/EWT(d)/EWT(1)/FCC/EWP(1) IJP(c) GO/GW/BB

ACC NR: AT6014298 (N) SOURCE CODE: UR/3118/65/000/010/0008/0030

53
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B+1

AUTHOR: Kheyfets, Ya. M.

ORG: none

TITLE: Construction of an information system for data fed from operations

SOURCE: Mirovoy meteorologicheskiy tsentr. Trudy, no. 10, 1965. Ob"yektivnyy analiz i obrabotka meteorologicheskikh dannykh (Objective analysis and processing of meteorological data), 8-30

TOPIC TAGS: synoptic meteorology, computer application, electronic computer, algorithm, matrix function

ABSTRACT: A discussion of the treatment of meteorological data 16 by electronic computers is developed along following lines: 1 - basic requirements for an informational system, which consists of the service requirements as well as the requirements of the objective analysis; 2 - development of the organizational procedure for storage and search of information which consists of (a) reorganization of the random set of data in biparametric information storage centers, (b) construction of the information matrix,

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ACC NR: AP7002569 (A,N) SOURCE CODE: UR/0413/66/000/023/0061/0062

INVENTOR: Fal'kovskaya, A. A.; Oberfel'd, M. Sh.; Kheyfets, Ya. M.; Rapoport, I. B.; Puchkov, N. G.; Borovaya, M. S.; Reznikov, V. D.

ORG: none

TITLE: Improving the antiseizure and anticorrosion properties and thermal oxidative stability of lubricants. Class 23, No. 189109 [announced by All-Union Scientific Research Institute for Petroleum Refining (Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 61-62

TOPIC TAGS: lubricant, EP property, anticorrosion additive, thermal oxidative stability, xanthate additive, lubricant additive

ABSTRACT:

An Author Certificate has been issued for a method for improving the antiseizure (EP) and anticorrosive properties, and thermal oxidative stability of lubricants. The method provides for the addition to the lubricants of xanthates of the formula ROCSSR', where R and R' are higher and branched alkyl radicals.

SUB CODE: 11/ SUBM DATE: 02Jul65/ ATD PRESS: 5112

Card 1/1 UDC: 621.892.84

KHEYFETS, Ya. M.

Perspectives for the development of some halurgical industries in Western Siberia and northern Kazakhstan. Zhur. prikl. khim. 34 no. 3: 473-492 Mr '61. (MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut galurgii.
(Siberia, Western—Salts) (Kazakhstan, Northern—Salts)

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

KHEYFETS, Ya. M.

PROCESSES AND PROPERTIES INDEX

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COMMON ELEMENTS

Dissolving carnallite through a well. Ya. M. Kheifets. *Kalii* (U. S. S. R.) No. 7, 33-5(1932).—The method is described. The estd. cost of the operation shows this method to be uneconomical.

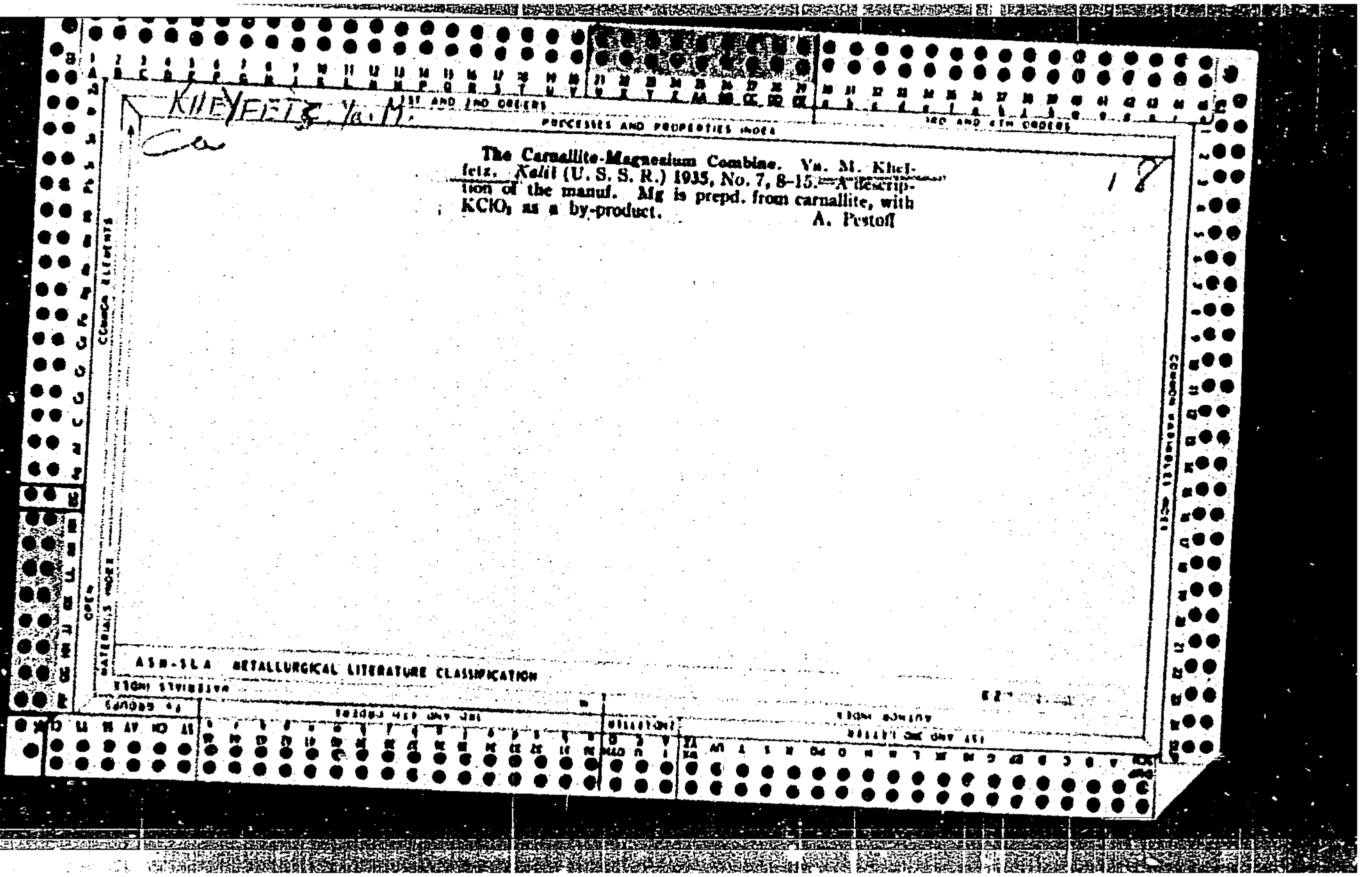
James Sorrel

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



KHEYFETS, Ya. M.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

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The Carnallite-Magnesium Combine. Ya. M. Kheifetz. *Kalii* (U. S. S. R.) 1935, No. 7, 8-15.—A description of the manuf. Mg is prepd. from carnallite, with $KClO_3$ as a by-product.

A. Pestoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KHEYFETS YA. M.

CA

4

The birth of the magnesium plants in the U. S. S. R. Ya. M. Kheifets. Kalii (U. S. S. R.) 1936, No. 6, 7-10.—A description of the advantages and disadvantages of electrolyzing (1) fused $MgCl_2$ [at the Dneprovskii Mg plant] and (2) fused carnallite [at the Solikamsk Mg plant]. A. Pestoff

KHEIFETS, YAKOV SAULOVICH

OSIPOV, Konstantin Sergeyevich; KHEYFETS, Yakov Saulovich; LEYTEKOV, M.Ya., otvetstvennyy redaktor; SMIRNOV, L.V., redaktor izdatel'stva; NADEINSKAYA, A.A., tekhnicheskiy redaktor; IL'INSKAYA, G.M., tekhnicheskiy redaktor

[Screw pumps in the coal industry] Vintovye nasosy v ugol'noi promyshlennosti. Moskva, Ugletekhizdat, 1957. 56 p. (MLRA 10:9)
(Pumping machinery)

PETROV, Ye. M., inzh.; KHEYFETS, Ye. D., inzh.; SHUGOL', I. S., inzh.

Design of the centering fastening of a hydraulic engine. Vest. mashinostr. 42 no.10:85 O '62. (MIRA 15:10)

(Hydraulic engines)

KHEIFETS, E. I.

Sharfshtein, A. I., and Kheifetz, E. I. DETERMINING POROSITY
OF REFRACTORY MATERIALS. Ogneupory, 2 (10) 24-27 (1934); Zavodskaya
Lab., 3,732-35 (1934).- The dried sample is heated for 20 to 30 min.
at 110-to 115° and then boiled for 30 to 40 min. in H_2O, cooled, wiped with
a moist towel, and weighed. The Sager volumometer is not sufficiently
accurate. A simple device, based on the hydrostatic law of Archimedes,
gives accurate results. It consists of a balance, one scale of which is
immersed in water. The sample is put on this scale and weighed with an
accuracy of 0.01 gm. The volume in cc. is $V - P_1 - P_2 + K$, in which $P_1 - P_2$
is the loss of weight in water and K is a correction coefficient dependent
upon the temperature of the water.

KHEYFETS, Ya.S.

The 16APV artesian submersible pump. Biul.tekh.-ekon.
inform. no.3:38-39 '60. (MIRA 13:6)
(Mine pumps)